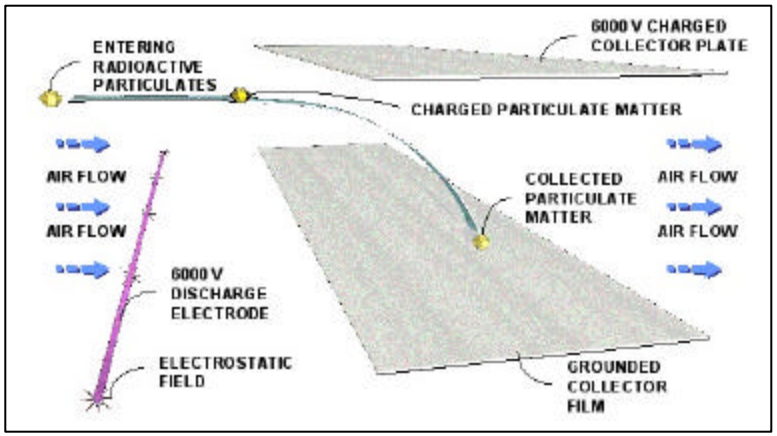
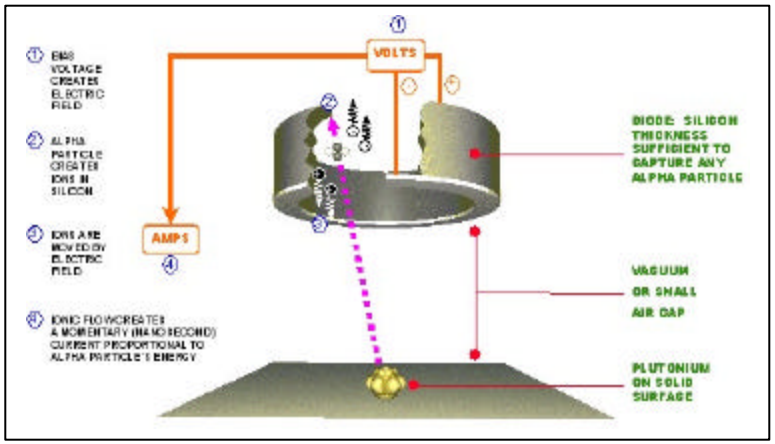
On-Line, Real-Time Alpha Radiation Measuring Instrument (TechID 312)

Thermo Power Corporation has demonstrated a new technology that permits extremely sensitive counting of alpha emitters in water, providing high-resolution alpha spectrometry. Individual radionuclides can be assayed simultaneously, based on their different alpha energies. The technology involves a patent-pending, in situ method of collecting and concentrating dissolved radioactive species on a solid surface, allowing for rapid quantification of the specific alpha-emitting species with a solid-state silicon detector. Variations of this technology are being developed in order to extend the detection limits well below the existing picoCurie per liter range. This will improve the response time of the technique and providing an archival record of the analyzed sample.





Developers:

- Thermo Power Corporation (Tecogen Division), Waltham, MA

Applications:

- Technology permits extremely sensitive counting of alpha emitters in water, while providing on-line, real-time monitoring
- Analyzing waste and process water (NPDES) discharges, surface and ground water monitoring, with future extension to solid samples, non-aqueous liquids, gas streams, and solid surfaces
- Field test performed in September 1998 at East Fork of Poplar Creek, Oak Ridge National Laboratory
- Demonstrated capability of alpha detection to 10 ppb uranium equivalent

Benefits:

- Cost savings will be realized through the elimination of individual sample handling and processing
- No delay in obtaining accurate analyses
- Dramatic reduction in end-to-end alpha monitoring costs
- Readily and conveniently archived samples
- Isotopic analyses, allowing discrimination of naturally-occurring radionuclides (radon daughters)

Status:

- Technical Contact (patch@tecogen.com)
- Innovative Technology Summary Report Available (www.cmst.org)